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# A CLINICAL STUDY

## OF THE MORE FREQUENTLY OCCURRING FORMS

OF

# CONJUNCTIVAL DISEASE.

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Mr. President and gentlemen—In calling your attention to a clinical study of conjunctival disease, I have been governed more by what I conceived would be your wish than by my own choice. Indeed, I have felt not a little hesitancy in consuming an evening of your time, fearing that any topic selected from my limited field of study might prove irksome to the members of a society composed so largely of gentlemen laboring in the wider field of general medicine and surgery. I trust, however, that any study of disease, however limited in its area, may not prove uninteresting to a company of physicians. Other and rarer forms of eye disease would have presented more vivid attraction as subject for pure scientific research; for to till the old acres is ever a homely task, while brilliancy and renown are the crown awarded to him who, for the first time, lays the boundaries to the hitherto unknown.

In point of importance, however, no form of eye disease can justly claim a larger share of attention than the affections of the conjunctiva. Highly organized, it seems peculiarly disposed to diseased action. Sustaining intimate and very important relations to the precious organ of sight, it is entitled to a careful guardianship. Its diseases are, for the most part, extremely simple in the beginning, but behind them lurks serious danger, and every physician should stand ready to avert or meet it. A very large proportion of the blind people occupying our asylums, or begging a precarious living on the streets, are blind as the result of conjunctival inflammation. Any one who sees large numbers of eye patients will recall the many hopeless cases, who, led by faithful friends, go the round of consulting rooms in city after city, in the vain hope that their opaque corneæ may once more be made transparent; the opacity being the result of inflammatory processes, set up in many cases by the rasping of chronically inflamed and neglected conjunctiva.

The result is but one end of a chain, the various links in which it is my purpose to supply. It is a reflection which I feel fully justified in making, that many of these people are needlessly blind; either as the result of sheer neglect, or of a domestic treatment worse than neglect. The proverb has it, "A blind man is a poor man." Certainly the blind are usually non-productive members of society, so that, as conservators of the public weal, it is

fitting that our profession, as far as possible, should prevent the one and discourage the other.

It repeatedly occurs that an eye with simple conjunctival catarrh, which, if protected from irritants, would have recovered, without treatment, in a few hours, is allowed to run on, exposed to tobacco smoke, in a close room, or to the steam of the laundry or kitchen, or the dust and heat of the carding room or foundry, until the simple hyperæmia which at first existed, with increased discharge of mucus, has passed into a more or less violent inflammation, with purulent discharge, swelling of the conjunctiva, interruption of corneal nutriment, and consequent necrosis or ulceration, before the advice of a physician is sought. Under judicious treatment the inflammation is arrested, but its pernicious effects are seen in the opaque cornea and sightless balls, or, at best, with only sufficient vision remaining to admit of only the coarsest employment ever after.

This neglect of all treatment is not so frequent, however, as the almost universally bad domestic treatment. It is more dangerous, too, for the reason that all classes, low and high, have, in their domestic *vade mecum*, a series of vaunted panaceas for "sore eyes."

However judiciously the so-called "simple remedies" of the domestic pharmacopœia may be applied in other branches of medicine, they are sure to be the worst possible thing for a sore eye. I have many times seen a strumous child, with phlyctenular ophthalmia, confined day after day, until the days pass into weeks, in a dark room, because it dreaded the light; with its eyes poulticed with various things, with the most commendable perseverance; and all meat denied—because it was "scrofulous."

After the list of panaceas has been exhausted, the physician's advice is sought for. The lids are found swollen and œdematous; a catarrh of the conjunctiva, the result of the poulticing, fomentations, etc., has been added to the true phlyctenular disease; ulcers are seen on the cornea, and it is fortunate if perforation and entanglement of the iris has not already taken place.

The ingenuity displayed in devising or hunting up a variety of substances with which to poultice and dose the eyes would be subject for amusement, were its effects not so pernicious. I have noted the following in the dispensary case book: wet cloths, wet bread crust, tea leaves, alum-curd, lungs of the sheep, raw beef, a raw oyster, a chicken's gizzard, "chamber lye" (urine), milk, molasses, *et hoc genus omne.* These incongruous substances are poured into or bound over the eyes, each with reputed specific virtues, and each regarded as "a harmless, simple remedy." Now, if either of these were applied, for twenty-four hours, to a perfectly healthy eye, I venture the assertion that it will take forty-eight hours to recover from its pernicious effect. If this is true of a healthy eye, how much worse will be its influence applied to the already injected conjunctiva, especially of a strumous child, still surrounded by the bad influences which have made it such, I need not even intimate.

Some of these practices, like most of the domestic practice of to-day, have, doubtless, become domesticated through the professional recommendations in years long passed. A steady professional discouragement of them will now go far to avert the distress growing out of these ill-advised legacies of our medical fathers.

The very great frequency with which conjunctival maladies occur is sufficient reason for their careful study. Analysis of my private case book shows that 17 per cent. of the whole number of eye cases applying for treatment came for relief from their conjunctival symptoms. At the Eye Dispensary of the University Hospital, under the care of Prof. Wm. F. Norris and myself, a careful analysis of the last 2000 cases showed that 27.65 per cent. applied for relief from conjunctival disease. A careful study of these cases and the results of their treatment, have fully justified the principles upon which the treatment was based, and which had quite unconsciously crept into practice. A painstaking clinical study of the cases, as they applied, and their subsequent analysis, has led to the opinion that all of the more frequently occurring forms of conjunctival disease form themselves into three groups—*catarrhal*, *strumous* and *symptomatic;* that they are essentially different forms of disease, as declared in their etiology, character, and the treatment required for their cure; that differential diagnosis is possible and important. My effort in this paper will be to justify this classification.

In the *first group—the catarrhal*—are included all those cases which, in consequence of exposure to cold or irritants, commence with hyperæmia of the conjunctiva and increased flow

of mucus; and may pass with more or less rapidity into inflammation, manifesting at different stages all its varied phenomena. Under this group belong the catarrhal, the purulent, the gonorrhœal, and granular opthalmiæ of writers, also opthalmia of new-born children, and chronic granulations.

These are all, in their etiology and essential characters, the same disease. Whatever may be their cause, whether it is exposure to cold and wet or dust, or from gonorrhœal pus, or leucorrhœal discharge, they are liable to pursue the same pathological history, and for their successful treatment require the same class of remedial applications.

If we are to accept the statements of patients, *taking cold* is a very frequent cause of catarrhal conjunctivitis. A young man, with his vital powers depressed, after an arduous day, falls asleep in a draught of air, possibly sitting upon the marble step at his home. He awakes with an uncomfortable sensation in one or both eyes. If he now seeks his bed, and comfortably disposes of himself, he may see no trace in the morning of his red eye of the evening before, other than a slight adhesion of the lids by inspissated mucus. It may not, however, run so favorable a course. The hyperæmia and dryness of the conjunctiva, which had, at first, made it grate unpleasantly over the ball, and was subsequently followed by increased discharge of mucus, has gone further. The epithelium of the conjunctiva has grown turbid, and soon becomes swollen and opaque, so that the meibomian glands, ordinarily seen through the transparent tarsal conjunctiva, are hidden from view. The eye feels as though there were a foreign body under the lids, and it often requires some persuasion to convince the individual that such is not the case. Left to itself, or worse, poulticed after one of the approved methods already enumerated, the conjunctiva loses all its normal features. The tarsal portion, in place of the smooth, transparent, vascular membrane, is now a bright red, threatening a brownish if the grade of inflammatory action is high, and it presents a velvety appearance, which, as the retro-tarsal portion is reached, is changed into successive rows of enlarged papillæ, which roll out into view as the lids are everted. The bulbar conjunctiva has become intensely red, and may be opaque, but often, when closely inspected, gives an appearance as though infiltrated with a semi-opaque gelatinous material, and is slightly œdematous or swollen, so that, encircling the limbus of the cornea, is discovered a ridge, elevated above the corneal margin. The mucus discharge has been replaced by a profuse purulent discharge. The case now would no longer pass muster, in the books, under catarrhal conjunctivitis, but is put down as purulent ophthalmia.

The cornea, receiving its nutriment from the loops of blood vessels which terminate at its border, soon begins to suffer in its nutrition from pressure on this supply, both by the swollen tissues through which the vessels pass, and by the swollen conjunctiva in the retro-tarsal fold and on the tarsi. It becomes slightly opalescent, which rapidly deepens into complete opacity, and finally necrosis. Such, in brief, is the course which any catarrh of the conjunctiva may pursue. Under the most approved methods of treatment, it is often subdued, only to settle down into chronic granular lids, which will take many months to get well; it may be with the tarsal cartilages distorted, and the eye useless, because of its opaque cornea.

It has run its course without any marked dread of light, or pain, until the cornea became involved. If the attack has been due to some irritant, the likeness to the above sketch will depend largely upon the character of the irritant applied. Gonorrhœal matter, from a patient suffering with the disease at its height, will rapidly pass into a purulent form of inflammation, so virulent in its type, that unless treated vigorously and well, will destroy the eye in twenty-four or thirty-six hours; while a young man suffering from gleet, although in bad health, recovered from an attack of conjunctivitis, produced by the accidental application of the urethral discharge to the cul-de-sac of his conjunctiva, in one week, the discharge never having become purulent. So in ophthalmia neonatorum. If birth take place while the mother has an active attack of gonorrhœa, the grade of inflammation in the child's eyes, produced by the vaginal discharge, will be more virulent than if produced from simple want of cleanliness upon the part of the woman, or by a leucorrhœal discharge. The kind of irritants upon which catarrhs depend are very numerous. I have often had a slight catarrh after exposure to dust, and once an attack caused by the nitrous acid fumes in the chemical laboratory.

An old gentleman under my care had a severe attack, caused by dusting calomel into his eye, while, without my knowledge, he was taking potassium iodide for his rheumatism. Washerwomen exposed to the fumes from the wash-tub, cooks, and coal heavers, have been, in my experience, especially liable to catarrhal conjunctivitis, but in these running a more insidious and protracted course. The daily constant application of the irritant leads slowly through much the same list of changes which occurs rapidly under other circumstances. The lids become granular, however, and under their incessant rasping the cornea becomes vascular and infiltrated, usually at its upper part, where it is subjected to the frequent movements of the upper lid.

The treatment which in my hands has proved most satisfactory in this group of catarrhs has been by the most painstaking use of the milder mineral astringents, except in the most virulent cases, where the cornea is rapidly endangered. In these the careful use of caustics and application of dry cold have been added to the astringent treatment, together with the instillation of a solution of sulphate of atropia. The caustic which I deem quite sufficient, however, in the most urgent case, is the mitigated stick of silver nitrate, one-third of the silver salt being fused with two-thirds of potassium nitrate.

One other exception needs especial mention, viz., the old cases of granular lids, which have gone the rounds of various consulting rooms, which are either the dregs of an acute purulent ophthalmia, or have grown up under the daily application of dust or other irritants. In these cases I have been better satisfied with a twenty per cent. solution of carbolic acid in glycerine than with the silver stick, or the much used and abused crayon of sulphate of copper, which is, when judiciously used, among the most efficient remedies in chronic granulations. I have already, on this floor, alluded to the relative change of temperature caused by different caustic applications to the eye-lids. Carbolic acid, it was found, caused a greater and more rapid elevation of temperature than either nitrate of silver or sulphate of copper.

In the second group, the *phlyctenular*, are included only those cases of conjunctivitis presenting the strumous facies, and occurring, for the most part, among the children of the poor. These cases present an entirely characteristic group of symptoms, both local and general, which separates them widely from the catarrhs.

A careful study of the local symptoms in a well developed typical case will reveal an agonizing dread of light, which causes the child to bury its head in the pillows or its mother's lap, to exclude every possible ray of light. The face being forcibly exposed to light, there is seen the most vigorous spasmodic closure of the eyelids. So strongly do the muscles contract that the brow is corrugated and the lineaments of the entire face changed. There is eczema of the cheeks, from the scalding tears and the constant burying of the face in the bed clothes wetted by the tears. The upper lip and the nostrils are excoriated and thickened, from the profuse discharge of tears and mucus through the nasal passages.

The condition of the conjunctiva is quite characteristic. There is fine capillary congestion, but the conjunctiva is *transparent*, even though the case may have been of many months' duration. In this it differs from the catarrhal conjunctivitis, in which the membrane becomes opaque, often, in twenty-four hours.

The entire surface of the conjunctiva, both the tarsal and bulbar portions, will be found more or less profusely studded with minute elevations; and along the limbus of the cornea, sometimes entirely encircling it, is seen a chain of larger elevations, which appear like minute blisters, and fasciculi of enlarged blood vessels are seen approaching them from the region of the retro-tarsal fold; or there may be one or more ulcers on the cornea itself.

The intense photophobia, the transparent conjunctiva, studded with phlyctenulæ, the flow of tears, the spasmodic closure of the lids, and the cachexia, form a group of symptoms differing very widely from those delineated as characterizing the catarrhs. Differing as radically as they do in their essential characters, the treatment demanded is scarcely less at variance with that pointed out in the former.

In phlyctenular ophthalmia, astringents and caustics do harm. I have seen them grow worse, even under the use of a mild collyrium of alum. The most important element in the treatment is to improve the general condition of the child. The eyes will not get well, and remain so, until this is done. I have, repeatedly, for many weeks together, treated faithfully these little sufferers, and without any improvement in the condition of the eyes, until there

was an obvious improvement in the general health. I am convinced that the condition of the conjunctiva is not altogether peculiar to it, but that were the other mucous membranes open to inspection we should find similar pathological conditions, modified possibly by local differences in structure; so far as the mucous membrane covering that part of the soft palate exposed readily to view is concerned, this is certainly true. The same condition in the alimentary mucous membrane is doubtless indicated by the precarious appetite and deranged bowels. Once the appetite improves, the bowels get well, and the emaciated limbs grow rotund, the child will resume its play in a moderately lighted room. The spasm of the orbicularis gives way, and the eye rapidly gets quiet and comfortable. There can be no greater mistake than to shut up a case of phlyctenular conjunctivitis in the house and in a dark room. The eyes should be shaded, but not tied up, and the patient required to spend many hours daily in the open air, in the park or country, if possible. I have often felt that more of the cure, in these cases, was due to the daily visit to the dispensary, than to my applications while there. The time usually required at the service, and the long ride to and from the hospital, consumes from two to four hours daily, which is quite a respite from the bad air of the court and the common living room, in which, too often, the child was born, and thus far reared.

These children are regarded as scrofulous, by the parents and friends, and there is a popular notion that meat should be avoided in such cases; so that this important aliment is usually interdicted. I am in the habit of advising fresh meat, milk, eggs, etc.—and all the child will take of them. I have thought the iodides were important to these children, and prefer, before everything else, the iodide of iron, which, after a time, may be changed for potassium iodide, in small doses. The local treatment is very simple. As long as the photophobia and orbicular spasm continue, I have confined myself to the simple instillation of sulphate of atropia solution at the daily visit to the dispensary, the parents to use the same, but a weaker, solution, at home. As soon as the irritation subsides, a careful insufflation of iodoform has seemed to hasten the cure, a weak solution of corrosive sublimate, gr.$\frac{1}{8}$–$\frac{1}{12}$ to the fl.℥j of water, being substituted for the atropia, at home. An ointment of the yellow oxide of mercury and atropia, āā grs.j, to ʒj of lard or other excipient, has, in some cases, appeared to be of service when other things had apparently failed.

As long as the disease is confined to the conjunctiva, it is comparatively an innocent affair, so far as danger to vision is concerned; but it is too frequently associated with phlyctenulæ on the cornea, which result in small ulcers, which may even perforate the cornea, and thus lead to more or less disastrous results, from the entangling of the iris in the wound, and from corneal specks, which, if central, may seriously mar the sharpness of vision, by shutting out the central rays of light from the pupil. I have seen very many unfortunate cases of this character.

There are many cases of conjunctival disease which do not accord with the history of either of the forms already delineated. They have not the same dread of light, nor is there the so-called strumous facies of phlyctenular disease. On the contrary, the disease may occur in children or adults, situated under the most inviting and favorable surroundings. When occurring in children, it is usually after the fifth or sixth year, while in those cases already described it occurs, for the most part, before the fifth year of age. I have learned to regard these as belonging to quite a different category, and have placed them in a third *group*, and for want of a better name, have designated them as *symptomatic*. To it belong the very many cases of mild conjunctival trouble which worry patient and doctor by their persistency. However intelligently he may prescribe, they either get no better or only temporary improvement follows.

They are characterized by hyperæmia of the tarsal conjunctiva, and careful inspection reveals through it the congested tortuous meibomian glands; the conjunctival surface is studded with numerous minute elevations, like small, whitish sand grains, and possibly somewhat larger bodies scattered very sparingly, if at all, over the tarsal portion of the conjunctiva, but more numerous in the retro-tarsal folds. Often the tarsal border will be thickened and scaly. The patient complains of weak eyes, by which he means that he finds difficulty in using them for near work. If obliged to do so, the scratching of the lids, burning sensation in the eyes, or possibly eyeache, or a peri-orbital neuralgia, are the penalty he must pay. The

symptoms are aggravated in seasons of depressed health, or after unusually protracted use of his eyes. They may even run on into serious and persistent inflammatory trouble. The hyperæmia which at first existed passes into proliferation and the conjunctiva becomes thickened and opaque. The long standing inflammation passes, by continuity of tissue, into the lachrymal passages, and obstruction to the flow of tears ensues, which in turn aggravates the conjunctival disease. The now thickened and granular membrane can no longer function properly, and the cornea soon suffers in consequence. In a word, all the features of chronic granular ophthalmia are presented.

Under the usual treatment adopted in these cases, if entire rest be insisted upon, these cases get well, after a time; but the hope of a permanent cure is blighted as soon as they resume their work. The group of cases presenting this history will usually be found to have some local cause for their protracted or recurring trouble, and I am convinced the defects of refraction and muscular insufficiency are responsible for it. The constant undue strain upon the ciliary muscle, which is the price that must be paid for distinct vision in certain of these defects, brings about a general ocular congestion, which very frequently passes into pathological conditions which no treatment, however skillfully conducted, will permanently relieve, so long as the ever active agent in its production is present. Very many times I have seen these stubborn cases go on to rapid and permanent recovery while wearing a glass correcting the anomaly of refraction, which had before baffled all my resources. The treatment is, first, to get rid of the inflammatory trouble, and before work is resumed correct any existing defect in the refraction by suitable glasses, and to obviate the insufficiency of the rectus muscles by operation or by prismatic glasses.

That this distinction is not a refinement of nosology, my case-book bears me abundant witness, and I have, therefore, placed them in a separate category, hoping thus to more positively direct attention to them. I beg your attention to a brief analysis of over six hundred cases of conjunctivitis upon which these remarks have been based. It will be evident from it that the true catarrhal and strumous ophthalmia occur, for the most part, among the poor; that a very large percentage of cases of conjunctival disease, simulating more or less closely the one or the other, but associated with refraction and muscular anomalies, occur under very different hygienic conditions, and undoubtedly depend upon the defects in the eye itself. In my private practice, conjunctival disease occurred in seventeen per cent. of the whole number of cases treated; of these, 19 per cent. were catarrhal, 27.4 per cent. were strumous, and 53.6 per cent. were symptomatic.

At the dispensary service, on the other hand, 27.65 per cent. of the whole number of cases treated were of conjunctival disease. Of these, 35.6 per cent. were catarrhal; 41.4 per cent. were phlyctenular, and 23 per cent. were symptomatic.

| GROUP. | Percentage to whole number of cases treated. | | Percentage to number of conjunctival disease. | |
|---|---|---|---|---|
| | *Dispensary.* | *Private.* | *Dispensary.* | *Private.* |
| Conjunctival Disease | 27.65 | 17 | ........ | ........ |
| Catarrhal | ........ | ........ | 35.6 | 19 |
| Phlyctenular | ........ | ........ | 41.4 | 27.4 |
| Symptomatic | ........ | ........ | 23 | 53.6 |

In the symptomatic group are included only the cases which came complaining of the conjunctival trouble as an important, and, in many instances, the only symptom, but in which there existed insufficiency of the recti muscles, or a considerable degree of anomaly of refraction, which was, in each case, regarded as an important agency in the cause of the disease, and treated by operation, or prisms, to relieve the muscular insufficiency, or, in the latter case, by the careful measurement, and correction by glasses, of the defect of refraction.

The persons usually applying at our dispensary services are exposed more to the influences which produce the catarrhal and strumous forms of disease, while they have much less demand for continued, accurate work at a near point, as in reading or writing. The opposite condition obtains among the more thrifty and well-to-do classes of society; their pursuits calling for near and accurate use of the eyes, and a corresponding strain upon the muscles of convergence and accommodation. When, through some defect, this strain is unduly increased, it very frequently reveals itself in the group of conjunctival diseases which I have designated as symptomatic, and which so frequently baffle all treatment until the existing defect is obviated by proper means